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ABSTRACT

This report presents an evaluation instrument through which school districts and schools can identify and select computer-based school information management systems (SIMS) suited to their needs. These selection criteria were identified through a survey questionnaire and interviews at 18 representative schools in the Edmonton (Alberta) Public School District. As a result of analysis of these data, a three-level evaluation process has been devised, with progressively more detailed selection criteria. Level 1 defines the four basic functions of SIMS: school records, scheduling, student attendance, and grade processing. It also covers basic criteria such as cost, reliability of vendor, hardware capacity, and ease of use. The Level 2 selection criteria are more detailed, and are used to determine whether a system meets the needs of a particular school. Level 3 evaluation, aimed at the few systems that are finalists in the selection process, involves functional and performance testing of all system modules in a real life environment. Evaluation at Level 3 is a two-phase process: first, each system is evaluated against the most detailed criteria, and second, the outcomes of individual product evaluations are summarized and compiled for comparison and final selection. Accordingly, two separate instruments are included: the SIMS Selection Criteria Level 3 working form, and the Comparison Summary and Review Form. Appended are the questionnaire and interview forms used to gather the information from which these criteria were derived, and a detailed scoring comparison form. (TE)

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# Selection Criteria for Integrated Student Information Management Systems

Edmonton Public Schools

EA 018 497

Alberta Education

Alberta

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EA

# SELECTION CRITERIA FOR INTEGRATED COMPUTER BASED SCHOOL INFORMATION MANAGEMENT SYSTEMS (SIMS)

FINAL REPORT

by

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Under Contract to Alberta Education, Edmonton, Alberta

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Appendix 1 - General Questionnaire

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Appendix 3 - Detailed Scoring Comparison Form

## 1.0 INTRODUCTION

Recent rapid advances in the computer technology and related fields have greatly increased the spectrum of opportunities for the application of computers. While increasing in power and performance, computers have also become more affordable and easier to use. Increasingly, educational administrators are seeking to apply the technology to the administration of schools. Many tasks which were once considered addressable only by large centralized mainframe computers can now be addressed by microcomputers. An example of such tasks is organization for instruction. School administrators are becoming increasingly interested in the local application of computer technology to school information management.

Among the computer based applications which exist for school administrators today are School Information Management Systems (SIMS) with a particular focus on student related information. These systems may be microcomputer or minicomputer based and, typically, incorporate four major modules which address school records, student scheduling, student attendance and marks or progress reporting. Usually, there is a high degree of integration between the modules which means, for example, that duplicate data bases are not required. In most cases, the cost of these software systems belies their complexity. Four thousand dollars buys multi-megabytes of software opportunity. In all cases, it is safe to assume that the cost of the software system itself will be the least impacting factor in any decision to apply it.

The implications of staff training, human resource requirements, ongoing operational and systems support costs, and implied organization changes as a result of local, computer based approaches to school information management are far more critical than the mere cost of the system itself. These considerations thus underscore the need to give very careful consideration to the early steps of identifying a suitable system alternative.

The purpose of the work which is reported on here, was to develop a broad evaluation instrument through which school districts and schools will be able to appropriately identify and prioritize the SIMS alternatives most suited to their needs.

The basic philosophy which underlies the work reported on here, therefore, is that evaluation as a whole should be a staged process which allows for the rapid identification and elimination of low potential alternatives. To this end, a three level evaluation process has been devised with progressively more detailed selection criteria. The first and second levels of the evaluation process thus serve to screen systems from the time consuming and detailed phase of the evaluation which takes place at Level 3.

## 2.0 MAJOR FACTORS TO BE CONSIDERED IN THE EVALUATION OF SIMS

The only way to reliably evaluate the scope and functionality of a SIMS alternative (i.e. what it can do and how well it does it) is through detailed, live testing. It is very important to note, however, that product scope and functionality is just one of six major factors which should be considered in the evaluation of SIMS alternatives. It is even more important to note that the other five major factors are collectively of equal (if not greater), importance than scope and functionality.

The table below identifies the six major factors which are believed (as a result of this work and of the District's direct involvement with SIMS) to be at the heart of SIMS evaluation. This table also shows a suggested emphasis (in the form of a percentage) which might be placed on the six factors in an evaluation.

| EVALUATION FACTOR | EMPHASIS (%) |
|---|---|
| PRODUCT SCOPE AND FUNCTION | 45 |
| EASE OF USE (OF PRODUCT) | 10 |
| TECHNICAL CONSIDERATIONS | 10 |
| SUPPORT AND SERVICES | 15 |
| PRODUCT QUALIFICATIONS | 10 |
| VENDOR | 10 |

It is significant to point out that the evaluation process which has been developed can be very flexibly applied within its domain of applicability allowing the evaluator to determine the relative emphasis to be placed on the six major factors.

## 3.0 APPROACH TO THE DEVELOPMENT OF THE SELECTION CRITERIA

The selection criteria were identified through the close cooperation and support of schools within the Edmonton Public School District. A six step process was used as outlined below:

Step 1 A General Questionnaire (see Appendix 1), Interview Guide and Detailed Checklist (see Appendix 2) were developed for the gathering of information from the schools to be surveyed. These documents were developed using information gained through prior, extensive contact with schools in general, through the experiences of Information Services Branch staff, and with a working knowledge of the characteristics of currently available systems. The general questionnaire was designed to determine which features and characteristics a SIMS should include and, in many cases, their relative importance. Where measures of the relative importance of a criteria or characteristic were required, the questionnaire featured a simple four point "must", "important", "optional" and "not required" scale for respondents to check.

Step 2 Eighteen district schools were identified as a representative sample through which detailed school information management needs and requirements would be confirmed. These schools were carefully chosen to reflect many of the key variables such as school level, size, programs, organization and operational style.

Step 3 The General Questionnaire was sent to the 18 identified schools together with a statement of its purpose and instructions for its completion. Participating schools were requested to give careful consideration to their responses to the questionnaire and to prepare for a follow-up interview. The questionnaire also allowed participants to respond to needs and requirements not specifically identified in the survey.

Step 4 After allowing ample time for the completion of the questionnaire, follow-up interviews were conducted at each school using the Interview Guide and Detailed Checklist referred to previously. The purpose of this step was to clarify and confirm responses relative to the questionnaire. The reason for the two stage information gathering process (questionnaire followed by the interview) was to allow the schools to first respond without external influence of any kind.

Step 5 Information gathered through the administration of the questionnaire and subsequent interviews was compiled and analyzed and used to determine the relative importance of selection criteria items. Particular attention was paid to the comments of participating schools since this sometimes led to the inclusion of additional criteria items which might otherwise have been missed.

Step 6 Simple qualitative and quantitative analysis of the questionnaire, its findings, and the results of the interviews led to the definition of the criteria lists (for the three proposed levels of evaluation) as well as to the determination of weighting factors where appropriate.

## 4.0 THE SELECTION CRITERIA

As stated previously, the selection process is defined as a three stage process. Three levels of progressively more detailed criteria have been developed and are described in the following subsections.

### 4.1 Selection Criteria - Level 1

The Level 1 Selection Criteria List is shown on the following page. This set of criteria is intended to be used as part of an initial screening procedure - typically, at the point in time when initial product and literature reviews are being conducted. The Level 1 criteria document defines, at a very broad level, the key characteristics which SIMS should embody to warrant further, more detailed consideration. If a SIMS alternative under consideration does not meet the Level 1 criteria, it need receive no further consideration.

## SIMS - Selection Criteria - Level 1

- The cost of the system, one time vendor services, and ongoing vendor support and operational costs should be within the bounds of consideration given an assumption that the system/vendor will successfully meet the information/support requirements.

- The vendor should be a well established firm with a viable product, with good customer references, and with solid (and hopefully local) support services (e.g. documentation, training, installation, product maintenance, product development, troubleshooting/consulting services).

- At a minimum, integrated School Information Management Systems should have operational the following functional components:

  - School Records
  - Scheduling
  - Student Attendance
  - Marks Processing

- The SIMS must be able to handle all students in a given school and so must be able to accommodate large schools of over 2000 pupils. It must allow flexible formats for major reports and/or user-definable reports and inquiries into the available data. The system should have the potential to function in a local area network to accommodate simultaneous access to the system by multiple users where appropriate.

- The system should not have any processes which run in excess of 24 hours. If the combination of the amount of data and hardware capacity makes any of the processes run in excess of 24 hours, the system must provide a mechanism for breaking up the entire process into smaller runs of under 24 hours, or else provide for an automatic backup and restart/recovery at the point of latest failure.

- The system construction should be parameter driven and allow the users to perform system regeneration to accommodate local operational approaches/ needs, or the vendor of the system should provide flexible and responsive local support for minor modifications and enhancements to the system.

- The system documentation, its ease of use, and the availability of vendor support should create an environment that does not require school staff to have special data processing skills for day-to-day system operation at the school level.

- The system should make efficient use of the available disk space (e.g. the space should not be occupied if a portion of the data files or system functions is not utilized). The system should allow the user to specify on which logical drive the data resides, and/or to allow for a continuous file space on more than one drive if the file structure of the system is such that a large volume of data is kept in one file.

- The system response time on simple screen functions should not exceed five seconds.

## 4.2 Selection Criteria - Level 2

The Level 2 Selection Criteria List is shown on the following two pages. This second stage evaluation document is intended to be used to determine whether a particular system has the inherent characteristics and capabilities to meet the needs of a particular school. While Level 1 criteria defines the four basic modules of SIMS, Level 2 further details the system capabilities, processes and attributes that each of the modules should exhibit (although still in fairly general terms). For example, it is at this level that an evaluator would determine whether a particular system is more appropriate for use at the senior, junior or elementary level. Level 2 criteria is intended for use at the more detailed market research stage. This stage is typically characterized by product demonstrations, system documentation reviews, detailed consultation with vendors and consultation with users (reference checks). Product evaluation at Level 2 need only be conducted in the event that Level 1 criteria are successfully met.

## SIMS - Selection Criteria - Level 2

### The School Records Function

The system should:

- allow for rapid entry of basic student data during the pre-registration process
- produce confirmation notices
- allow student identification at the District and Ministry levels
- contain data items required to satisfy school information needs
- accommodate a reasonable number of various user-defined fields in addition to the standard data fields
- produce standard reports as well as user-defined reports/inquiries using available data

### The Scheduling Function

The system should:

- handle any combination of full year, semester, trimester, quartermester, or 6 week segment courses that are used in the school
- provide a user-defined timetable rotation/tumble
- allow a flexible number of periods per day
- provide a flexible scheduling sequence (e.g. A-Z, Z-A, lowest grade first, highest grade first)
- maintain current and future year master schedules and timetables
- have an automated master schedule builder
- have a manual master schedule builder
- allow automated entry of course requests
- allow manual entry of course requests
- provide adequate checking of pre- and co-requisites
- allow for student preferences
- produce appropriate pre- and post-scheduling reports
- complete one scheduling simulation run within 24 hours for as many as 2300 students
- be able to produce necessary scheduling reports without interfering or delaying the computer utilization for other system functions

For junior high schools only, the system should:

- allow homeroom grouping for core subjects
- be capable of scheduling any course in any combination of periods

The Attendance Function

The system should:

- allow automated entry of attendance data
- allow manual entry of attendance data
- allow multiple user-defined absence types
- be able to record detailed attendance information at various intervals
- maintain detailed attendance data for at least ten days
- maintain cummulative attendance history for one school year
- be able to produce various user-defined reports based on the available data

The Student Marks Function

The system should:

- allow automated entry of marks information
- allow manual entry of marks information
- allow a minimum of 4 term marks and a final mark
- be able to produce report cards using a user-defined format
- produce various user-defined reports

General Functionality

The system should:

- perform all runs within the time frame dictated by the instructional support processes adopted in the school
- accommodate all data required by the available processes within the limitations of currently available hardware configurations
- have a built in back-up and recovery procedure, or provide clear instructions on the file structure for backup and recovery through the operating system utilities
- provide at least password security protection to prevent access to the data by unauthorized users

## 4.3 Selection Criteria - Level 3

This is the final and most critical level of the evaluation. Evaluation at this level implies functional and performance testing and evaluation of all system modules at the detailed level in a real life environment. The concept of weighting is introduced at this level of the evaluation. Besides product quality, functionality, and reliability considerations, this level also implies vendor evaluation in terms of expertise, product plans, and support services (e.g. installation, training, maintenance, consulting). This stage is time and resource intensive and thus should only be undertaken on a short list of high potential systems alternatives. Evaluation at Level 3 is, itself, a two phase process. First, each system alternative is evaluated against the most detailed criteria, and secondly, the outcomes of individual product evaluations are summarized and compiled for comparison purposes to facilitate final selection. To facilitate this stage of evaluation, two separate documents have been developed. The first is the SIMS Selection Criteria Level 3 Working Form, which is described and the document shown in section 3.3.1. The second document is the Comparison Summary and Review Form which is described and shown in section 3.3.2.

### 4.3.1 Selection Criteria Level 3 - Working Form

This document provides the greatest level of detail of all and is intended for use during the detailed and comprehensive testing of each individual product. The left hand side of the document identifies major evaluation factors. Immediately to the right of this is a column entitled CRITERIA ITEMS. For each major evaluation factor, this particular column contains a number of major criteria (e.g. features, processes, or attributes of a system) which are to be quantitatively evaluated. These major criteria are identified by underlining. Below each major criteria is a list of detailed criteria. The detailed criteria are of two types - those which will be scored during the evaluation and those which are provided for context consideration only and which will not be scored. Criteria items provided for context consideration are preceded by a hyphen (-). Criteria items which will be scored can be identified by the presence of an entry in the column marked WEIGHT.

By way of example, the key function entitled School Records (associated with the Product Scope and Function evaluation factor) has been broken down into three major criteria, namely (1) Pre-Registration/ Enrollment, (2) Detailed Data Items and (3) Reports/Inquiries. For Pre-Registration and Enrollment, three detailed criteria have been identified which should be scored - notably, Create student record, Registration confirmation notice, and Feeder school confirmation notice.

To assist with the development of a score for the Create student record criteria item, general non-scorable context or supplementary items have been listed for consideration such as school student ID, last name, etc. By way of contrast, no context or supplementary items were considered necessary in relation to the scorable Registration confirmation notice item.

The column entries for the Level 3 working form document are summarized below.

**Evaluation Factor** - identifies a key area of evaluation and the beginning of a detailed criteria list for that particular factor.

**Criteria Item** - identifies a feature, process or attribute associated with the factor. The Criteria item column also contains supplementary entries intended to provide an evaluator with a more complete perspective on a particular criteria item being evaluated. Supplementary entries, which are identified by a preceding hyphen, do not have a weight assigned to them.

**Weight** - is a measure of the relative importance of a criteria item to the user. Summing of weighting factors (or weights) gives a broad perspective of the relative importance of major areas or modules within the context of the entire evaluation. Weights are assignable at the discretion of the user.

**Score** - is a measure of how well a given criteria is met by a particular alternative. It is suggested that scores be assigned on a simple 0 - 10 scale (or user defined equivalent). Only those items which have weighting factors should be scored. Levels 1 and 2 of the evaluation are checklist oriented and thus scoring is not required.

**Weighted Score** - this column entry is the product of the weight and the raw score and is a measure of how well the needs of a user are met on that particular item, area or module.

**Maximum Weighted Score** - is the product of the weight and the maximum possible score. This would be the weighted score which implies a perfect fit to the needs of the user on a particular criteria item, set thereof, factor, etc.

**Weighted Score/Max Weighted Score** - this ratio gives a proportional measure of how well user needs are met on a particular item, set thereof, factor, etc.

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | SCORE (S) | WEIGHTED SCORE (W X S) | MAX WT SCORE (W X $S_{max}$) | WT SCORE/MAX WT SCORE |
|---|---|---|---|---|---|---|
| PRODUCT SCOPE & FUNCTION | **SCHOOL RECORDS** | | | | | |
| | Pre-Registration/Enrollment | | | | | |
| | Create student record | 15 | | | | |
| | - school student I.D. | | | | | |
| | - last name | | | | | |
| | - middle name | | | | | |
| | - first name | | | | | |
| | - birthdate | | | | | |
| | - current grade | | | | | |
| | - sex | | | | | |
| | - feeder school | | | | | |
| | - home address | | | | | |
| | Registration confirmation notice | 3 | | | | |
| | Feeder school confirmation notice | 2 | | | | |
| | **TOTAL Pre-Registration/Enrollment** | 20 | | | | |
| | Detailed Data Items | | | | | |
| | Student information | 25 | | | | |
| | - school student I.D. | | | | | |
| | - District student I.D. | | | | | |
| | - Alberta Education student I.D. | | | | | |
| | - last name | | | | | |
| | - middle name | | | | | |
| | - first name | | | | | |
| | - birthdate | | | | | |
| | - current grade | | | | | |
| | - sex | | | | | |
| | - feeder school | | | | | |
| | - home address | | | | | |
| | - telephone number | | | | | |

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | SCORE (S) | WEIGHTED SCORE (W X S) | MAX WT SCORE (W X $S_{max}$) | WT SCORE/MAX WT SCORE |
|---|---|---|---|---|---|---|
| | - emergency contact<br>  - name<br>  - telephone<br>- entry information<br>  - entry date<br>  - registration code<br>  - withdrawal code<br>- previous schools (2)<br>- homeroom instruction<br>- counsellor<br>- parent/guardian information (up to 4)<br>  - name<br>  - address<br>  - telephone (home and business)<br>  - relationship<br>  - occupation<br>- locker information<br>  - number<br>  - combination<br>- student indebtedness<br>- religious denomination<br>- program type<br>- number of credits earned<br>  - this school<br>  - other schools<br>- academic history<br>- travel information<br>  - method<br>  - distance<br>  - bus pass information<br>- parking information<br>  - driver's licence<br>  - licence plate<br>  - parking space<br>- medical information<br>  - disabilities/behaviours<br>  - medications<br>  - allergies | | | | | |

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | SCORE (S) | WEIGHTED SCORE (W X S) | MAX WT SCORE (W X $S_{max}$) | WT SCORE/MAX WT SCORE |
|---|---|---|---|---|---|---|
| | - date of last medical<br>- physician information<br>- health care number<br>- departure information<br>- date<br>- reason<br>- minimum of 6 user defined fields | | | | | |
| | Instructor Information | 5 | | | | |
| | - instructor code<br>- name<br>- address<br>- telephone<br>- social insurance number<br>- language of instruction<br>- certificate number<br>- courses taught<br>- minimum of 6 user defined fields | | | | | |
| | Course information | 15 | | | | |
| | - course code (5 character alpha-numeric)<br>- description<br>- pre-and co-requisites (minimum of 4)<br>- must handle"and"/"or"situation<br>- course type<br>- language of instruction<br>- course accreditation<br>- credit value (2 digits)<br>- pass/fail mark<br>- grade | | | | | |
| | **TOTAL Detailed Data Items** | 45 | | | | |

(15)

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | SCORE (S) | WEIGHTED SCORE (W X S) | MAX WT SCORE (W X $S_{max}$) | WT SCORE/MAX WT SCORE |
|---|---|---|---|---|---|---|
| | Reports/Inquiries | 25 | | | | |
| | All reports and inquiries should be available for all or a specified range of records, in various sort orders.<br><br>- class lists<br>- homeroom lists<br>- student name labels<br>- student address labels<br>- parent address labels<br>- student I.D. cards<br>- student data (alphabetical or numerical order)<br>- parent data (alphabetical or numerical order)<br>- instructor data (alphabetical or numerical order)<br>- course data<br>- student phone list<br>- student name list<br>- student grade list<br>- feeder school list<br>- locker information list<br>- student population by instruction type<br>- fee sheets<br><br>The system should allow production of user-defined reports/inquiries using available data. | | | | | |
| | **TOTAL Reports/Inquiries** | 25 | | | | |
| | **TOTAL SCHOOL RECORDS** | 90 | | | | |

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | SCORE (S) | WEIGHTED SCORE (W X S) | MAX WT SCORE (W X $S_{max}$) | WT SCORE/MAX WT SCORE |
|---|---|---|---|---|---|---|
| | **SCHEDULING** | | | | | |
| | Detailed Data Items | | | | | |
| | - Course code<br>- Course section | | | | | |
| | Manual scheduling (Arena Scheduling) | 7 | | | | |
| | Pre-scheduling | | | | | |
| | Course Requests | | | | | |
| | manual entry | 5 | | | | |
| | automated entry | 9 | | | | |
| | - allow student to specify mandatory/ compulsory courses,<br>- preferred courses, preferred alternatives, etc.<br>- allow student to specify preferred section, semester, or instructor | | | | | |
| | Edit and validation of course requests | 7 | | | | |
| | - checking of pre- and co-requisites in the current students' requests as well as history files<br>- capability to override pre- and co-requisites<br>- capability to complete pre-requisite checking for students from other District schools. | | | | | |
| | Pre-scheduling reports | 9 | | | | |
| | - potential conflict matrix — for all or a specified range of courses. Additional selection criteria may be | | | | | |

(17)

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | SCORE (S) | WEIGHTED SCORE (W X S) | MAX WT SCORE (W X $S_{max}$) | WT SCORE/MAX WT SCORE |
|---|---|---|---|---|---|---|
| | based on the number of requests or the number of sections.<br>- course tally<br>- students with no requests<br>- student course request list<br>- min/max request list<br>- min/max credit list<br>- verification tickets<br>- arena scheduling labels<br>- students missing compulsory courses<br>- students requesting specific course or group of courses | | | | | |
| | Master schedule builder | | | | | |
| | Capability to build a master schedule<br>manually | 6 | | | | |
| | automatically | 9 | | | | |
| | Capability of handling a variety of Scheduling units | 9 | | | | |
| | - full year<br>- semester<br>- trimester<br>- quartermester<br>- 6 week unit<br>- any combination of the above | | | | | |
| | User defined timetable rotation/tumble | 10 | | | | |
| | Flexible number of periods per day | 10 | | | | |
| | Capability to specify exclusive male or female sections | 5 | | | | |
| | Capability to maintain current and future year/semester master schedules | 8 | | | | |

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | SCORE (S) | WEIGHTED SCORE (W X S) | MAX WT SCORE (W X $S_{max}$) | WT SCORE/MAX WT SCORE |
|---|---|---|---|---|---|---|
| | Scheduling Process | | | | | |
| | User defined scheduling sequence<br>- low grades first<br>- high grades first<br>- A to Z<br>- Z to A | 6 | | | | |
| | Unscheduling of no-shows/withdrawals | 5 | | | | |
| | Scheduling of individual student or small groups of students | 6 | | | | |
| | Capability to reset all students or partially scheduled students | 8 | | | | |
| | Capability to lock scheduling assignments for all students or a group of students | 8 | | | | |
| | Restart capability | 8 | | | | |
| | Course weighting/semester balancing (ensure even course load for students) | 8 | | | | |
| | Blocking of courses | 7 | | | | |
| | Section balancing | 8 | | | | |
| | Class balancing (males-females) | 4 | | | | |
| | Capability to keep scheduling open after school start while starting to use the attendance module | 9 | | | | |
| | Scheduling Reports/Inquiries<br>- student timetables — grid and list format<br>- instructor timetables — grid and list format<br>- room timetables — grid and list format<br>- master schedule<br>- student scheduling conflicts<br>- students partially scheduled<br>- unassigned time | 10 | | | | |

(19)

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | SCORE (S) | WEIGHTED SCORE (W X S) | MAX WT SCORE (W X $S_{max}$) | WT SCORE/MAX WT SCORE |
|---|---|---|---|---|---|---|
| | Junior High Scheduling Requirements | | | | | |
| | Homeroom grouping for core subjects | 9 | | | | |
| | Capability of scheduling any course in any combination and number of time periods | 10 | | | | |
| | TOTAL SCHEDULING | 200 | | | | |
| | STUDENT ATTENDANCE | | | | | |
| | Entry of Attendance Data | | | | | |
| | manual entry | 5 | | | | |
| | automated entry | 9 | | | | |
| | Multiple user-defined absence types | 8 | | | | |
| | Capability to record attendance data at various intervals | 10 | | | | |
| | - daily<br>- twice per day<br>- period by period<br>- subject by subject | | | | | |
| | Attendance history | 8 | | | | |
| | - at least ten days detail<br>- cummulative totals | | | | | |
| | Attendance reports/inquiries | 10 | | | | |
| | - student by class<br>- student by subject<br>- student by period | | | | | |

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | SCORE (S) | WEIGHTED SCORE (W X S) | MAX WT SCORE (W X $S_{max}$) | WT SCORE/MAX WT SCORE |
|---|---|---|---|---|---|---|
| | - homeroom attendance<br>- daily summary<br>- weekly summary<br>- monthly summary<br>- multiple absence<br>- capability to produce unexcused absence report for the current day within 30 minutes<br>- the system should allow user defined reports/inquiries using available data | | | | | |
| | **TOTAL ATTENDANCE** | 50 | | | | |
| | **STUDENT MARKS** | | | | | |
| | Entry of marks data | | | | | |
| | manual | 5 | | | | |
| | automated | 9 | | | | |
| | Marks data | 10 | | | | |
| | - minimum of 4 term marks plus final mark<br>- letter or percentage grades | | | | | |
| | Student Exams | 6 | | | | |
| | Exam timetable builder | | | | | |
| | - automated<br>- manual | | | | | |
| | Exam Reports/Inquiries | | | | | |
| | - potential exam conflict matrix<br>- exam schedules | | | | | |

(21)

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | SCORE (S) | WEIGHTED SCORE (W X S) | MAX WT SCORE (W X $S_{max}$) | WT SCORE/MAX WT SCORE |
|---|---|---|---|---|---|---|
| | Reports/Inquiries | 10 | | | | |
| | proof list<br>report cards<br>- marks data<br>- final mark, calculated according to<br>- user-defined form<br>- attendance data<br>- class averages<br>- honour lists<br>- potential failure lists<br>- graduation list | | | | | |
| | **TOTAL STUDENT MARKS** | 40 | | | | |
| | **UTILITY FUNCTIONS** | | | | | |
| | Backup/Restore | 12 | | | | |
| | Security/Controls | 8 | | | | |
| | **TOTAL UTILITY FUNCTIONS** | 20 | | | | |
| | **GRAND TOTAL, PRODUCT SCOPE AND FUNCTION** | 400 | | | | |
| EASE OF USE | - flexibility<br>- modular, table driven<br>- help facilities<br>- menu driven | 60 | | | | |
| | **GRAND TOTAL, EASE OF USE** | 60 | | | | |

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | SCORE (S) | WEIGHTED SCORE (W X S) | MAX WT SCORE (W X $S_{max}$) | WT SCORE/MAX WT SCORE |
|---|---|---|---|---|---|---|
| TECHNICAL CONSIDERATIONS | - hardware<br>- system software environment<br>- operating system<br>- utilities<br>- database management/system internals/files<br>- networking capabilities<br>- user hooks<br>- modularity of the system | 80 | | | | |
| | GRAND TOTAL, TECHNICAL CONSIDERATIONS | 80 | | | | |
| SUPPORT & SERVICES | - local versus where/how far<br>- package support and services<br>- software support, custom modifications<br>- documentation<br>- user guide, application system, procedural, operations guide, file layouts<br>- training<br>- applications system, operational (DP), availability schedule, format, location, prerequisites<br>- implementation<br>- training<br>- initialization (conversion,file set-up, output forms)<br>- implementation plan | 70 | | | | |
| | GRAND TOTAL, SUPPORT & SERVICES | 70 | | | | |

(23)

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | SCORE (S) | WEIGHTED SCORE (W X S) | MAX WT SCORE (W X $S_{max}$) | WT SCORE/MAX WT SCORE |
|---|---|---|---|---|---|---|
| **PRODUCT QUALIFICATIONS** | | 80 | | | | |
| | - package background<br>- reliability<br>- current development status<br>- number of installations<br>- product development plans<br>- release concept, portability, verticality | | | | | |
| | **GRAND TOTAL, PRODUCT QUALIFICATIONS** | 80 | | | | |
| **VENDOR** | | 70 | | | | |
| | - Corporate information<br>  - background and history<br>  - financial performance<br>  - employee base<br>- Market volatility and vendor stability<br>- References<br>- Contractual Terms<br>  - maintenance<br>  - warranty<br>  - ownership rights<br>  - discount structure/price limit | | | | | |
| | **GRAND TOTAL, VENDOR** | 70 | | | | |

3(24)

### 4.3.2 Selection Criteria Level 3 - Comparison Summary and Review Form

The Level 3 working form is used exclusively for one product. In contrast, the Comparison Summary and Review Form contains a summary of the results of the detailed evaluations on all (three in our example) products under consideration. This form is designed to facilitate comparison between alternatives based on the six major factors referred to in section 2.0 (and which were evaluated in detail through the Level 3 Working Form).

To employ the comparison summary and review form, the potential SIMS user completes the column marked EMPHASIS. Entries in this column indicate the relative emphasis which a user places on the corresponding evaluation factor. The potential user then extracts the ratio (weighted score/max weighted score) from the Level 3 Working Form for each of the evaluation factors, multiplies this ratio by the EMPHASIS and enters the result in the appropriate column for each product alternative under consideration. Resulting entries in the product columns will be numbers (less than or equal to the corresponding emphasis) which are measures of the suitability of the particular product for a given evaluation factor. These numbers can be considered to be scores out of the percent emphasis. The vertical total of suitability will be a score out of 100 for a given product which can be easily compared from product to product.

It should be noted that suitabilities calculated according to the method described should be viewed as relative measures of the extent to which systems meet a paticular user's needs. Suitabilities will vary according to the completeness of the criteria, user defined weighting factors, percent emphasis and, very obviously, on the scores assigned by the product evaluator.

It should be noted that the user may easily define and use versions of this form at a more detailed level if so desired.

For those evaulators who may wish to compare natural and weighted scores across product alternatives, a Detailed Scoring Comparison Form is included (see Appendix 3). This particular form is identical in format to the Level 3 Working Form and contains only those items which were scorable (i.e. it does not include context related items).

SIMS - SELECTION CRITERIA - LEVEL 3 - Comparison Summary and Review Form

| EVALUATION FACTOR | EMPHASIS (%) | SUITABILITY = EMPHASIS X ( WEIGHTED SCORE / MAX WEIGHTED SCORE ) | | |
|---|---|---|---|---|
| | | PRODUCT 1 | PRODUCT 2 | PRODUCT 3 |
| PRODUCT SCOPE AND FUNCTION | ____ | ____ | ____ | ____ |
| EASE OF USE (OF PRODUCT) | ____ | ____ | ____ | ____ |
| TECHNICAL CONSIDERATIONS | ____ | ____ | ____ | ____ |
| SUPPORT AND SERVICES | ____ | ____ | ____ | ____ |
| PRODUCT QUALIFICATIONS | ____ | ____ | ____ | ____ |
| VENDOR | ____ | ____ | ____ | ____ |
| **TOTALS** | 100 | | | |

## 5.0 SUGGESTED USE OF THE SELECTION CRITERIA

Level 1 and Level 2 criteria documents have been designed for use in simple checklist fashion, and are intended to facilitate product screening. The user should determine how well a product alternative meets the criteria set out and whether to proceed to successive levels of the evaluation process.

Level 3 of the evaluation process, though very detailed, is also flexible. The following steps are suggested for the Level 3 evaluation:

- o examine the criteria for completeness - add needed items
- o confirm/adjust the weighting system
- o choose a comfortable scoring scale
- o prepare one adjusted Level 3 Working Form for each product to be evaluated
- o score relevant criteria items for each product according to scoring scale
- o calculate weighted scores, maximum weighted scores and the ratios of weighted scores to maximum possible weighted scores for each product evaluated
- o calculate subtotals and totals
- o transfer raw and weighted score to the Detailed Scoring Comparison Form (optional)
- o define the percentage emphasis, extract data from the Level 3 Working Form and complete the Comparison Summary and Review Form
- o analyze the Comparison Summary and Review Form to determine the most suitable product - this will be indicated by the product with the highest total suitability

Both weighting factors and scoring scales are user definable. It is important, however, to evaluate competitive products on the same set of criteria.

Having determined the relative suitability of competitive products, product price must be considered as a factor for a second time. Having evaluated a product at Level 3 itself implies that it is within the realm of affordability. The decision which must now be made relates to differences and tradeoffs between product suitability and product price.

## 6.0 COMMENTS AND CONCLUSIONS

A flexible process, together with supporting documentation, has been developed which is adaptable and which can be universally applied to the evaluation of School Information Management Systems (SIMS). The process is simple to apply and may be used by district or school administrators to evaluate systems alternatives, independent of the level of hardware to be employed (i.e. microcomputer, minicomputer or mainframe).

In fact, the detailed evaluation of a product (Level 3 Working Form) could be carried out objectively by a technical expert, the outcomes of which can be effectively employed in a subjective way by the potential user to determine its suitablity to his/her particular needs.

The choice of a SIMS has far more profound implications beyond the cost of the system itself, for reasons which have already been mentioned. Accordingly, this initial step towards the computerization of school information management processes should receive careful consideration.

In view of the current, extremely high level of interest in this area, and of the significant implications of related decisions, we recommend that the process and documentation be communicated to other districts as soon as possible. The critical level of interest has been emphasized by frequent and detailed communications on this topic with other schools.

It should be emphasized that the Level 3 evaluation of SIMS is a time consuming and intensive process. In view of this, it is not likely that an individual school or a small jurisdiction will undertake the evaluation of more than one system at the same time. This means comparative results will not be available with which to determine the relative benefits and trade-offs between alternatives. In such cases, it is highly likely that the first alternative evaluated will be adopted operationally unless it turns out to be quite unacceptable.

Sequential and potentially limited evaluation of system alternatives implies that detailed information on systems alternatives will not be simultaneously available to schools at the point in time when critical long term operational decisions are being made. In order to maximally benefit schools throughout the Province, evaluations should proceed in parallel. Such parallel investigation is currently taking place through a separate project funded jointly by Alberta Education and Edmonton Public Schools. In addition to the information being acquired through this investigation, we recommend that Alberta Education encourage the completion of the Level 3 documents by those schools or districts who may be currently engaged in detailed evaluations of SIMS. This information should then be collected, analyzed and appropriately communicated. Although it is highly desirable to have scoring judgments made as consistently as possible in order to maintain reasonable comparability (as is the case within the Edmonton Public Schools initiatives), all input and experience is of value and should be sought out and compiled.

It is the intention of the Distributed Systems Team to utilize the criteria as a common basis to report the outcome of all of its micro and mini based SIMS related project commitments to Alberta Education.

## APPENDIX 1

## GENERAL QUESTIONNAIRE

This document was distributed to schools for completion as an initial information gathering step in the process to develop evaluation and selection criteria for school information management systems.

# EDMONTON PUBLIC SCHOOLS
# COMPUTERIZATION OF SCHOOL ADMINISTRATIVE/INFORMATION SYSTEMS

## GENERAL QUESTIONNAIRE

### Background

The Distributed Systems Services Team has identified a short list of computer software packages specifically designed for the day-to-day student administrative requirements of individual schools. In order to facilitate the selection of the most suitable software alternative, for the EPSD from a District-wide perspective, the attached questionnaire has been prepared with a view of determining the relative importance of the type of information, system functions and features needed by the school(s). In addition, personal interviews will be conducted with each participating school in order to determine each school's specific information requirements, review the type and detail of data needed by the school to streamline its operations and identify any areas of concern.

The questionnaire has been divided into two parts. Part 1 deals with the information needs of a STUDENT ADMINISTRATIVE SYSTEM and Part 2 addresses other information requirements that the school(s) may have.

### Part 1 - STUDENT ADMINISTRATIVE SYSTEM

Each item is to be weighted in accordance to its relative importance to the specific institution completing the questionnaire, using the following rating scale.

NONE - Not required.

OPT - "Optional" - a requirement not considered essential but for which preference may be given

IMP - "Should" ("Desireable") ("Important") - a requirement having a significant degree of importance to the objectives of the Student Administrative/Information System

MUST - Mandatory - a requirement that must be met in a substantially unaltered form in order for the software package to meet the schools vital information needs.

### Part 2 - OTHER INFORMATION SYSTEMS

Applications should be ranked in accordance with the school's priority to computerize other areas of its operations.

NAME OF SCHOOL (in full) _____

_____ _____

Questionnaire completed by: (Name) _____

(Title) _____

_____

PART 1

**STUDENT ADMINISTRATION SYSTEM - INFORMATION NEEDS**

SECTION A - School records, student records, attendance recording/ reporting, student marking process and reporting requirements.

**General Overview of the System's Objectives**

A computerized student administrative system to resolve and streamline the collecting, transcribing, maintaining and reporting of student data. It is to maintain student related data, provide up-to-date information and prepare reports that are used by administrators, counsellors, instructors, students and parents.

Information Need - Relative Rating Scale Legend:

| | | Relative Importance | | | |
|---|---|---|---|---|---|
| Column Heading | - | NONE | OPT | IMP | MUST |
| Degree of importance | - | Not required | Optional | Important | Mandatory |

| Application/Feature Description | Relative Importance | | | |
|---|---|---|---|---|
| | NONE | OPT | IMP | MUST |
| **1) Registration/Enrollment** | | | | |
| -Entering a student into the school and creating the student record | | | | |
| -Registration/Enrollment confirmation notice | | | | |
| -Other information needs (specify): | | | | |
| _____ | | | | |
| _____ | | | | |
| _____ | | | | |
| _____ | | | | |
| **2) Student Records** | | | | |
| -Demographic data e.g. name and address, program, type of instruction, medical, class(es), timetable, medical, parents, etc. | | | | |
| -History i.e. academic achievements, marks, course attempts, etc. | | | | |
| -Student coding e.g. | | | | |
| - school ID# | | | | |
| - EPSD & Alerta student ID # | | | | |
| -Bus Information e.g. bus pass number, pick-up and drop off points, driver name, bus routes etc. | | | | |
| -Interface/integration with your school's accounting system (in future) | | | | |
| -Other (specify) | | | | |
| _____ | | | | |
| _____ | | | | |
| _____ | | | | |
| _____ | | | | |

| Application/Feature Description | Relative Importance | | | |
|---|---|---|---|---|
| | NONE | OPT | IMP | MUST |
| **3) Student Attendance** | | | | |
| -Indicate the frequency that attendance is/ should be taken in your school e.g. every period (by class) once per day, twice per day, at homeroom time, etc. | | | | |
| _____ | | | | |
| _____ | | | | |
| -How often do you need attendance reports e.g. daily, weekly, bi-weekly, etc.? | | | | |
| _____ | | | | |
| _____ | | | | |
| -How much detailed attendance history does your school require to keep "on-line" for parent, counsellor inquiries e.g. 5 days history, 6 days history etc.? | | | | |
| _____ | | | | |
| _____ | | | | |
| -What types of attendance reports do you need? e.g. by student, student by class/subject, student by day, exception reports etc. and how frequently do you require each report? | | | | |
| _____ | | | | |
| _____ | | | | |
| _____ | | | | |
| _____ | | | | |
| _____ | | | | |
| **4) School Reports** | | | | |
| -Directories/class lists | | | | |
| -Labels (mailing) | | | | |
| -Student ID cards | | | | |
| -Schedules (student, teachers, rooms) | | | | |
| -Other reports (specify) | | | | |
| _____ | | | | |
| _____ | | | | |
| _____ | | | | |
| _____ | | | | |
| _____ | | | | |
| _____ | | | | |

| Application/Feature Description | Relative Importance | | | |
|---|---|---|---|---|
| | NONE | OPT | IMP | MUST |
| **5) Instructor Records** | | | | |
| -Personal and demographic information | ____ | ____ | ____ | ____ |
| -Courses taught | ____ | ____ | ____ | ____ |
| -Areas of specialty | ____ | ____ | ____ | ____ |
| -Certificate number | ____ | ____ | ____ | ____ |
| -Other (specify) | | | | |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| **6) Student Marking Process** | | | | |
| -Comprehensive editing and validation of student marks prior to report card preparation e.g. mark verification, identification of student with unassigned marks etc. | ____ | ____ | ____ | ____ |
| -Report card printing | ____ | ____ | ____ | ____ |
| -Type of reports e.g. GPA's, honour lists, etc. (Please specify): | | | | |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| -Other information needs (specify): | | | | |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| -What is the maximum number of marks per course maintained by your school for a student e.g. 4 mid-term marks, 2 exams and a final mark? | | | | |
| _____ | ____ | ____ | ____ | ____ |
| _____ | | | | |
| _____ | | | | |
| _____ | | | | |
| _____ | | | | |

| Application/Feature Description | Relative Importance | | | |
|---|---|---|---|---|
| | NONE | OPT | IMP | MUST |
| **7) Student Exams** | | | | |
| -Exam timetable builder | ____ | ____ | ____ | ____ |
| -Exam conflicts matrix | ____ | ____ | ____ | ____ |
| -Exam schedules | ____ | ____ | ____ | ____ |
| -Other (specify) | | | | |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| **8) Courses** | | | | |
| -Course number, short description, detailed description (for annual school handbook), credit values, prerequisites, etc. | ____ | ____ | ____ | ____ |
| -Other information requirements (specify): | | | | |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |

## SECTION B - STUDENT SCHEDULING

Course requests, prerequisite verfication, request confirmation, student curricular counselling, computerized scheduling, school start up registration, automatic generation of student fee sheets and printing of individual timetables.

THIS SECTION IS APPLICABLE TO HIGH SCHOOLS,

JUNIOR HIGH SCHOOLS AND ELEMENTARY-JUNIOR

HIGH SCHOOLS ONLY

## SECTION B - STUDENT SCHEDULING

Course requests, prerequisite verification, request confirmation, student curricular counselling, computerized scheduling, school start up registration, automatic generation of student fee sheets and printing of individual timetables.

| Application/Feature Description | Relative Importance | | | |
|---|---|---|---|---|
| | NONE | OPT | IMP | MUST |
| **1) Pre-scheduling** | | | | |
| -Comprehensive editing and validation of course requests e.g. prerequisite checking marks verification, identification of students with no requests, insufficient/ excessive credits requested | ____ | ____ | ____ | ____ |
| -Prescheduling reports e.g. course tally list, exception reports (students missing mandatory/compulsory courses) | ____ | ____ | ____ | ____ |
| -Scheduling conflicts matrix | ____ | ____ | ____ | ____ |
| -Other information needs (specify): | | | | |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| -Other prescheduling reports (specify): | | | | |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| **2) Master Schedule** | | | | |
| -Master timetable builder | ____ | ____ | ____ | ____ |
| i) What course code would you prefer to use e.g. a school course code, EPSD course code or the Alberta course code | | | | |
| _____ | ____ | ____ | ____ | ____ |
| ii) Please specify ALL of the scheduling units used by your school, e.g. semester full year, trisemester, six week section, quartermester, etc. | | | | |
| _____ | | | | |
| _____ | | | | |
| _____ | | | | |

| Application/Feature Description | Relative Importance | | | |
|---|---|---|---|---|
| | NONE | OPT | IMP | MUST |

iii) Please specify the following:
Rotation: _____
Days per week: _____
Periods per week: _____
used in your school's master timetable.

**3) Student Scheduling**

| | | | | |
|---|---|---|---|---|
| -Completion of the student scheduling process before the summer break | ____ | ____ | ____ | ____ |
| -Ability to preassign sections | ____ | ____ | ____ | ____ |
| -Ability for your school to assign scheduling priorities | ____ | ____ | ____ | ____ |
| -Automatic scheduling of an individual student i.e. mid-term transfer pupil | ____ | ____ | ____ | ____ |
| -Ability to schedule groups of students i.e. unregistered last minute arrivals | ____ | ____ | ____ | ____ |
| -Ability to 'UNSCHEDULE" a student or group of students i.e. no shows, students that move away during summer etc. | ____ | ____ | ____ | ____ |
| -Restart capabilities e.g. reset assignments for a student and/or course | ____ | ____ | ____ | ____ |
| -Course sequencing | ____ | ____ | ____ | ____ |
| -Course weighting i.e. ability of the computerized scheduler to distribute course loads evenly so that a student is not scheduled to take an overload of difficult courses in the first semester and a group of relatively easier courses during the second semester | ____ | ____ | ____ | ____ |
| -Blocking | ____ | ____ | ____ | ____ |
| -Class balancing | ____ | ____ | ____ | ____ |
| -Semester balancing | ____ | ____ | ____ | ____ |
| -Double room identity e.g. Physical Education all male/female class | ____ | ____ | ____ | ____ |
| -Double room identity for mixed classes e.g. Home Economics and Industrial Arts | ____ | ____ | ____ | ____ |

i) What are your present scheduling priorities
e.g. - lower grade students first and so on up to highest grade?

_____

e.g. - single section courses before multiple section courses?

_____

- CONTINUED ON NEXT PAGE -

| Application/Feature Description | Relative Importance | | | |
|---|---|---|---|---|
| | NONE | OPT | IMP | MUST |
| e.g. - mandatory/compulsory courses first followed by student preferences followed by options/alternatives? | | | | |
| OR indicate your priorities in the space below: | | | | |
| -Ability to run schedules from more than one perspective e.g. single sections first then mandatory courses etc. and mandatory courses first and single sections last | | | | |
| -Other information needs (specify): | | | | |
| **Reports** | | | | |
| -Student schedules | | | | |
| -Multiple conflicts matrix | | | | |
| -Partially scheduled students | | | | |
| -Other (specify): | | | | |
| **4) School Start Up** | | | | |
| -Generation of fee sheets | | | | |
| -Ability to schedule all new students (unexpected enrollments) only i.e. the schedules for all previously registered students would not be affected | | | | |
| -Preparation of timetables in grid format (students, teachers and rooms) | | | | |
| -Class lists | | | | |
| -Other (specify): | | | | |

THE FOLLOWING ITEMS ARE PERCEIVED TO BE APPLICABLE TO SCHEDULING IN JUNIOR HIGH SCHOOLS ONLY

| Application/Feature Description | Relative Importance | | | |
|---|---|---|---|---|
| | NONE | OPT | IMP | MUST |
| **5) Special Scheduling Requirements of Junior High Schools** | | | | |
| -Blocking of course options OR Scheduling students requesting same group of options into the same class or homeroom | ____ | ____ | ____ | ____ |
| -Blocking of 2-3 sections of the same course in same time block e.g. Math or Language Arts | ____ | ____ | ____ | ____ |
| -Homeroom identity grouping for Language Arts, Social Studies, Science, Math | ____ | ____ | ____ | ____ |
| -Ability to handle option courses with varying lengths of instruction e.g. French as an option requires four periods per week whereas other options require three periods per week | ____ | ____ | ____ | ____ |
| -Back to back time tabling for double classes | ____ | ____ | ____ | ____ |
| -Ability to handle variable time slots by course subject e.g. six periods of Language Arts, five periods of Math, four periods of Social Studies, etc. | ____ | ____ | ____ | ____ |
| -Other requirements or unique characteristics associated with the scheduling process for your school | | | | |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| Please specify any idiosyncracies in your schools allocation of subject time e.g. different/variable periods (standard period = 40 minutes, course x has a period of 30 minutes, etc.) | | | | |

PART 2 - OTHER INFORMATION SYSTEMS

Please rank the importance of each application in accordance with your schools priority to computerize other areas of its operations, e.g. 1, 2, 3 etc., from most important to least important. If an application is not perceived to be a requirement indicate a priority of "0" (zero) or "NIL".

| Application/System or Sub-system | Implementation Priority |
|---|---|
| Accounts Payable | |
| Accounts Receivable | |
| Budgeting | |
| Computer Assisted Instruction (CAI, CAL, CML) | |
| Cost Accounting | |
| Financial (General Ledger and Financial Statements) - also indicate whether or not you require commitments to be included i.e. encumberance accounting Yes or No _____ | |
| Fixed Assets | |
| Inventory Control | |
| Library Services | |
| Purchasing | |
| Word Processing | |
| Work Orders | |
| Other (Specify) | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

## APPENDIX 2

## INTERVIEW GUIDE AND DETAILED CHECKLIST

This document was used to facilitate a follow-up interview with surveyed schools to clarify and confirm their responses to the general questionnaire.

EDMONTON PUBLIC SCHOOLS

COMPUTERIZED INFORMATION SYSTEMS NEEDS OF INDIVIDUAL SCHOOLS

INTERVIEW GUIDE AND DETAILED CHECKLIST

SECTION A - School records, student records, attendance recording/ reporting, student marking process and reporting requirements.

| Application/Feature Description | Relative Importance | | | |
|---|---|---|---|---|
| | NONE | OPT | IMP | MUST |
| **1) Registration/Enrollment** | | | | |
| Use questionnaire. | | | | |
| **2) Student Records** | | | | |
| -Personal/Demographic | ____ | ____ | ____ | ____ |
| -Courtesy name | ____ | ____ | ____ | ____ |
| -Academic | ____ | ____ | ____ | ____ |
| -Activities | ____ | ____ | ____ | ____ |
| -Medical | ____ | ____ | ____ | ____ |
| -Program | ____ | ____ | ____ | ____ |
| -Type of instruction | ____ | ____ | ____ | ____ |
| -Timetables | ____ | ____ | ____ | ____ |
| -Courses and classes | ____ | ____ | ____ | ____ |
| -Student history to include all courses/marks while in the school | ____ | ____ | ____ | ____ |
| OR | | | | |
| Does the school want to include all marks the student has achieved while in a similar level of school e.g. High School, Grades 10-12; Junior High, Grades 7-9 etc. Specify level of detail needed below: | | | | |
| _____ | ____ | ____ | ____ | ____ |
| _____ | | | | |
| -Complete history of each course that each student attempts, including the number of attempts | ____ | ____ | ____ | ____ |
| -Parent data up to a maximum of 2 parents per student | ____ | ____ | ____ | ____ |

| Application/Feature Description | Relative Importance | | | |
|---|---|---|---|---|
| | NONE | OPT | IMP | MUST |
| -Is a limit of 2 parents sufficient? Yes or No _____ | | | | |
| -Bus pass number | ____ | ____ | ____ | ____ |
| -Bus route(s) | ____ | ____ | ____ | ____ |
| -Driver name | ____ | ____ | ____ | ____ |
| -Pick-up and drop off points | ____ | ____ | ____ | ____ |
| -Student ID # (indicate whether the school has a preference for its own unique ID system or the EPSD ID #) _____ | ____ | ____ | ____ | ____ |
| -Multiple ID's for cross referencing and interface with EPSD and Alberta | ____ | ____ | ____ | ____ |

3) **Student Attendance**

Use questionnaire.

4) **School Reports**

Use questionnaire.

5) **Instructor Records**

Use questionnaire.

6) **Student Marking Process**

| | | | | |
|---|---|---|---|---|
| -Report cards prepared by school rather than ISB Yes or No _____ If Yes indicate level of importance | ____ | ____ | ____ | ____ |
| -Student marks proof listing for verification before production of report cards | ____ | ____ | ____ | ____ |
| -Student transcripts | ____ | ____ | ____ | ____ |

7) **Student Exams**

Use questionnaire.

| Application/Feature Description | Relative Importance | | | |
|---|---|---|---|---|
| | NONE | OPT | IMP | MUST |
| **8) Courses** | | | | |
| -Term weight | | | | |
| -Included/excluded from report card average | | | | |
| -Pass/Fail mark | | | | |
| -Other (specify): | | | | |
| _____ | | | | |
| _____ | | | | |
| _____ | | | | |

SECTION B - STUDENT SCHEDULING

**N.B. THIS SECTION SHOULD BE COMPLETED FOR HIGH SCHOOLS AND JUNIOR HIGH SCHOOLS ONLY**

| Application/Feature Description | Relative Importance | | | |
|---|---|---|---|---|
| | NONE | OPT | IMP | MUST |
| **1) Pre-scheduling** | | | | |
| -Student course/program/curriculum counselling list | | | | |
| -Marks verification as part of prerequisite checking e.g. 49% in Math 10 is not acceptable for entry into Math 20 course but is acceptable for Math 23 | | | | |
| In this case should the student be advised of his/her options before the scheduling simulation i.e. repeat Math 10 or opt for Math 23? Yes or No _____? | | | | |
| -Ability for the individual student to identify his/her | | | | |
| a) mandatory/compulsory courses | | | | |
| b) preferred course requests | | | | |
| c) preferred alternatives | | | | |

CONTINUED

| Application/Feature Description | Relative Importance | | | |
|---|---|---|---|---|
| | NONE | OPT | IMP | MUST |
| -Ability to conduct prerequisite checking for students from another school within the EPSD | ____ | ____ | ____ | ____ |
| -Ability to handle co-requisites | ____ | ____ | ____ | ____ |
| -Ability to add student records from another EPSD school into your microcomputer e.g. transfer student, graduate student from a feeder school etc. | ____ | ____ | ____ | ____ |
| **2) Master Schedule** | | | | |
| -Current Semester | ____ | ____ | ____ | ____ |
| -Current Year | ____ | ____ | ____ | ____ |
| -Future Semester(s) | ____ | ____ | ____ | ____ |
| -Other (specify): | | | | |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| _____ | ____ | ____ | ____ | ____ |
| **3) Student Scheduling** | | | | |
| -Access to scheduling alorithim e.g. logic, parameters, scheduling resolutions, options etc. | ____ | ____ | ____ | ____ |
| -"Teacher Link Courses" e.g. in the instance where a teacher is instructing English 10 and Social 10, a common core of students should be scheduled to this teacher for both courses (subjects) | ____ | ____ | ____ | ____ |
| -Arena scheduling | ____ | ____ | ____ | ____ |
| -Student section selection (preference) | ____ | ____ | ____ | ____ |
| -Student instructor selection (preference) | ____ | ____ | ____ | ____ |
| -Reduced term requests i.e. scheduling a student into, say, the second semester of a full year English course in order to improve his/her grade without repeating the first semester which he/she passed satisfactorily | ____ | ____ | ____ | ____ |
| -Specific term requests e.g. Biology 10 in first semester and Biology 20 in the second semester | ____ | ____ | ____ | ____ |

CONTINUED

| Application/Feature Description | Relative Importance | | | |
|---|---|---|---|---|
| | NONE | OPT | IMP | MUST |
| -Other requirements for an in-house computerized scheduler:<br>- use data from questionnaire and interview | | | | |
| **4) School Start Up**<br>Use questionnaire. | | | | |
| **5) Special Scheduling Requirements of Junior High Schools**<br>Use questionnaire.<br>ENSURE THAT THE JUNIOR HIGH SCHOOL IDENTIFIES ITS UNIQUE NEEDS AND DEFINES ANY ITEMS OR AREAS THAT DIFFER FROM THE NORM. | | | | |

## PART 2 - OTHER INFORMATION SYSTEMS

### ACCOUNTS PAYABLE (A/P)

1) Open item or balance forward

2) Does the school issue its own A/P cheques?

   If Yes how many cheques does it issue per month on the average?

3) What is the average number of General Ledger distributions per vendor invoice?

4) If the school has indicated that the computerization of its Accounts Payable application is a need, obtain a general description of what the school expects from an automated system e.g. type of reports, statistical analysis, breakdown of A/P expenses (how?) etc.

5) Should the school's purchase orders be included in the A/P system to reflect commitments?

ACCOUNTS RECEIVABLE (A/R)

1) Open item or balance forward

2) How many invoices does the school issue per month?

3) Does the school issue monthly statements for unpaid accounts?

4) Why does the school want to automate its A/R application?
e.g. expected results, type and frequency of reports, revenue analysis, etc.?

BUDGETING

If computerization of General Ledger and Financial Statements are a need identified by the school suggest that the Budgeting application should be included as an integral part of the former system.

1) What information and/or statistical breakdowns do we need for budgeting e.g.:

-student count by category or program (ESL pupils, native children, etc.)

-previous years financial statements by department, program, cost centre, etc.

FINANCIAL (GENERAL LEDGER AND FINANCIAL STATEMENTS)

1) Should commitments be included in the schools financial reports i.e. encumberance accounting in order to ensure that the school knows where it stands in relation to its budget?

   For example:

   Total budget - (actual expenditures + PO commitments) = the balance available in the budget

2) Does the school require any interface/integration between its financial and student administrative system?

3) What type of G/L coding structure does the school envision?

   e.g. EPSD G/L code

   or

   The schools own G/L code

4) How many G/L accounts does the school now use?

CONTINUED

5) What objectives is the school seeking through computerization of its financial information i.e. type and frequency of reports, budget analysis etc.

6) How many different fund sources does the school have?

e.g.

EPSD funds (from provincial and municipal taxes)

TRIM funds (Text book rental, fees and instructional materials)

Special project funds derived from school initiatives i.e. car washes, bottle drive etc., for field trips (glee club, band, soccer team)

Other

7) Does the school require separate financial statements for each fund it is responsible for?

8) Are consolidated financial statements required by the school?

9) What other financial information does the school need?

COMPUTER ASSISTED INSTRUCTION

Obtain a general description of the schools needs and expectations in this area.

Cost Accounting

1) Could the schools requirements in this area be included in the general ledger financial statements. If not obtain a conceptual overview of the type of cost accounting information required by the school.

FIXED ASSETS

1) What general class of items does the school want to include in this application?

2) Are the school's fixed assets currently tagged with a permanent identifier?

3) Approximately how many items does the school estimate it would include in its automated fixed asset sysem?

4) Obtain a brief conceptual overview of what the school expects from a fixed asset system.

5) What type and frequency of reports does the school need from this system.

INVENTORY CONTROL

1) Does the school have a central storage facility?

2) What type(s) of inventory and how many items, issues and receipts does the school wish to control?

e.g. Automotive shop

Wood shop

Home Economics, etc.

3) Does the school need to integrate its purchase orders with inventory control?

4) What does the school need in the way of an inventory control system? Describe briefly.

LIBRARY SERVICES

1) How many books does the school estimate to have in its library?

2) Computerized needs

-Cross Reference by Author?
Title?
Publisher?
Subject?
Key words?

-Checkout/Renewal

-Returns

-Overview notices/lists

-Fines

-Other

3) Statistics e.g. usage?

4) Obtain a general conceptual overview of the schools needs in this area.

PURCHASING

General requirements, volumes and brief conceptual overview.

WORD PROCESSING

Estimated volumes, frequencies

Type of word processing needed i.e.

- personalized letters
- mass mailings
- reports
- general correspondence

Try to determine an estimate of the school's current work load.

WORK ORDERS

Estimated Volumes

How are they handled now?

Are W/O's costed out e.g.

labour $

material $

Are W/O's integrated into the financial system?

General conceptual overview and description of system needs.

## APPENDIX 3

## DETAILED SCORING COMPARISON FORM

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | PRODUCT 1: SCORE (S) | PRODUCT 1: WEIGHTED SCORE (W X S) | PRODUCT 2: SCORE (S) | PRODUCT 2: WEIGHTED SCORE (W X S) | PRODUCT 3: SCORE (S) | PRODUCT 3: WEIGHTED SCORE (W X S) |
|---|---|---|---|---|---|---|---|---|
| PRODUCT SCOPE & FUNCTION | SCHOOL RECORDS | | | | | | | |
| | Pre-Registration/Enrollment | | | | | | | |
| | Create student record | 15 | | | | | | |
| | Registration confirmation notice | 3 | | | | | | |
| | Feeder school confirmation notice | 2 | | | | | | |
| | TOTAL Pre-Registration/Enrollment | 20 | | | | | | |
| | Detailed Data Items | | | | | | | |
| | Student information | 25 | | | | | | |
| | Instructor Information | 5 | | | | | | |
| | Course information | 15 | | | | | | |
| | TOTAL Detailed Data Items | 45 | | | | | | |
| | Reports/Inquiries | 25 | | | | | | |
| | TOTAL Reports/Inquiries | 25 | | | | | | |
| | TOTAL SCHOOL RECORDS | 90 | | | | | | |
| | SCHEDULING | | | | | | | |
| | Manual scheduling (Arena Scheduling) | 7 | | | | | | |

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | PRODUCT 1: SCORE (S) | PRODUCT 1: WEIGHTED SCORE (W X S) | PRODUCT 2: SCORE (S) | PRODUCT 2: WEIGHTED SCORE (W X S) | PRODUCT 3: SCORE (S) | PRODUCT 3: WEIGHTED SCORE (W X S) |
|---|---|---|---|---|---|---|---|---|
| | Pre-scheduling | | | | | | | |
| | Course Requests | | | | | | | |
| | manual entry | 5 | | | | | | |
| | automated entry | 9 | | | | | | |
| | Edit and validation of course requests | 7 | | | | | | |
| | Pre-scheduling reports | 9 | | | | | | |
| | **TOTAL Pre-Scheduling** | 30 | | | | | | |
| | Master schedule builder | | | | | | | |
| | Capability to build a master scheduler manually | 6 | | | | | | |
| | automatically | 9 | | | | | | |
| | Capability of handling a variety of scheduling units | 9 | | | | | | |
| | User defined timetable rotation/tumble | 10 | | | | | | |
| | Flexible number of periods per day | 10 | | | | | | |
| | Capability to specify exclusive male or female sections | 5 | | | | | | |
| | Capability to maintain current and future year/semester master schedules | 8 | | | | | | |
| | **TOTAL Master Schedule Builder** | 57 | | | | | | |
| | Scheduling Process | | | | | | | |
| | User defined scheduling sequence | 6 | | | | | | |
| | Unscheduling of no-shows/withdrawals | 5 | | | | | | |

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | PRODUCT 1: SCORE (S) | PRODUCT 1: WEIGHTED SCORE (W X S) | PRODUCT 2: SCORE (S) | PRODUCT 2: WEIGHTED SCORE (W X S) | PRODUCT 3: SCORE (S) | PRODUCT 3: WEIGHTED SCORE (W X S) |
|---|---|---|---|---|---|---|---|---|
| | Scheduling of individual student or small groups of students | 6 | | | | | | |
| | Capability to reset all students or partially scheduled students | 8 | | | | | | |
| | Capability to lock scheduling assignments for all students or a group of students | 8 | | | | | | |
| | Restart capability | 8 | | | | | | |
| | Course weighting/semester balancing (ensure even course load for students) | 8 | | | | | | |
| | Blocking of courses | 7 | | | | | | |
| | Section balancing | 8 | | | | | | |
| | Class balancing (males-females) | 4 | | | | | | |
| | Capability to keep scheduling open after school start while starting to use the attendance module | 9 | | | | | | |
| | **TOTAL Scheduling Process** | 77 | | | | | | |
| | Scheduling Reports/Inquiries | 10 | | | | | | |
| | Junior High Scheduling Requirements | | | | | | | |
| | Homeroom grouping for core subjects | 9 | | | | | | |
| | Capability of scheduling any course in any combination and number of time periods | 10 | | | | | | |
| | **TOTAL SCHEDULING** | 200 | | | | | | |
| | **STUDENT ATTENDANCE** | | | | | | | |
| | Entry of Attendance Data | | | | | | | |
| | manual entry | 5 | | | | | | |
| | automated entry | 9 | | | | | | |

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | PRODUCT 1: SCORE (S) | PRODUCT 1: WEIGHTED SCORE (W X S) | PRODUCT 2: SCORE (S) | PRODUCT 2: WEIGHTED SCORE (W X S) | PRODUCT 3: SCORE (S) | PRODUCT 3: WEIGHTED SCORE (W X S) |
|---|---|---|---|---|---|---|---|---|
| | Multiple user-defined absence types | 8 | | | | | | |
| | Capability to record attendance data at various intervals | 10 | | | | | | |
| | Attendance history | 8 | | | | | | |
| | Attendance reports/inquiries | 10 | | | | | | |
| | **TOTAL ATTENDANCE** | 50 | | | | | | |
| | **STUDENT MARKS** | | | | | | | |
| | Entry of marks data | | | | | | | |
| | manual | 5 | | | | | | |
| | automated | 9 | | | | | | |
| | Marks data | 10 | | | | | | |
| | Student Exams | 6 | | | | | | |
| | Exam timetable builder<br>Exam Reports/Inquiries | | | | | | | |
| | Reports/Inquiries | 10 | | | | | | |
| | **TOTAL STUDENT MARKS** | 40 | | | | | | |

| EVALUATION FACTOR | CRITERIA ITEMS | WEIGHT (W) | PRODUCT 1 SCORE (S) | PRODUCT 1 WEIGHTED SCORE (W X S) | PRODUCT 2 SCORE (S) | PRODUCT 2 WEIGHTED SCORE (W X S) | PRODUCT 3 SCORE (S) | PRODUCT 3 WEIGHTED SCORE (W X S) |
|---|---|---|---|---|---|---|---|---|
| | UTILITY FUNCTIONS | | | | | | | |
| | Backup/Restore | 12 | | | | | | |
| | Security/Controls | 8 | | | | | | |
| | TOTAL UTILITY FUNCTIONS | 20 | | | | | | |
| | GRAND TOTAL, PRODUCT SCOPE AND FUNCTION | 400 | | | | | | |
| EASE OF USE | | 60 | | | | | | |
| | GRAND TOTAL, EASE OF USE | 60 | | | | | | |
| TECHNICAL CONSIDERATION | | 80 | | | | | | |
| | GRAND TOTAL, TECHNICAL CONSIDERATIONS | 80 | | | | | | |
| SUPPORT & SERVICES | | 70 | | | | | | |
| | GRAND TOTAL, SUPPORT & SERVICES | 70 | | | | | | |

(63)

| EVALUATION FACTOR | CRITERIA ITEMS (W) | WEIGHT (S) | PRODUCT 1: SCORE (S) | PRODUCT 1: WEIGHTED SCORE (W X S) | PRODUCT 2: SCORE (S) | PRODUCT 2: WEIGHTED SCORE (W X S) | PRODUCT 3: SCORE (S) | PRODUCT 3: WEIGHTED SCORE (W X S) |
|---|---|---|---|---|---|---|---|---|
| PRODUCT QUALIFICATIONS | | 80 | | | | | | |
| | GRAND TOTAL, PRODUCT QUALIFICATIONS | 80 | | | | | | |
| VENDOR | | 70 | | | | | | |
| | GRAND TOTAL, VENDOR | 70 | | | | | | |